Trichomoniasis - New Interest in an Old Problem

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Recent advances in controlling and/or preventing well-known bovine abortion or infertility diseases (i.e. brucellosis, infectious bovine rhinotracheitis, bovine virus diarrhea, campylobacteriosis, leptospirosis) have resulted in renewed interest in an old disease, trichomoniasis.

The incidence of trichomoniasis in the United States is unknown because only limited surveys for the causative organism have been carried out. It was thought to be common in beef herds mainly in southwestern states. However, trichomoniasis has been found wherever its been looked for and this now includes North Dakota.

Trichomoniasis is an insidious disease of cattle caused by the protozoan *Tritrichomonas foetus (T. foetus)*. The disease is characterized by infertility in the female, occasionally by pyometra, and, in rare cases, by abortion.

Trichomoniasis is a contagious venereal disease spread from animal to animal during coitus. *T. foetus* is found only in the genital tract. In the cow this includes the vagina, cervix, and uterus. In the bull, the trichomonad is found on the penis and prepuce.

The sterility produced by this disease occurs only in the female and is the result of inflammation of the endometrium of the uterus and cervical and vaginal mucous membranes. Once infected, the cow may spontaneously recover and conceive after several heat cycles. These animals will have developed a short-term immunity which may not last until the next breeding season. A smaller percentage of cows remain infected and infertile for longer periods of time, resulting in conception very late in the breeding season or open cows. An even smaller number will develop pyometra and a rare cow will conceive but later abort.

Unlike the cow, infection in the bull neither impairs fertility nor imparts an immune response. Any age bull can mechanically transmit *T. foetus*. Bulls four years of age and older have well-developed epithelial crypts on the penis and in the prepuce and these allow permanent infection by the trichomonad. For these reasons, bulls have generally been considered the source of new infections, but carrier cows also occur.

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Trichomoniasis in beef herds is not a dramatic disease and by the time it is diagnosed is usually well established. The usual signs include breeding activity late in the breeding season and, at pregnancy exam time, a number of early pregnancies and open cows. The calving season will be spread out resulting in a wide variation in weaning weights.

Diagnosing trichomoniasis is accomplished by examining breeding bulls and, generally, if enough bulls from a herd are sampled, the presence of *T. foetus* can be established. Repeated sampling may be required on an individual bull to determine the presence or absence of *T. foetus*. Therefore, the more bulls examined from a herd the better. Also, if one bull is found positive (on a one-test basis) all bulls should be considered positive.

An effective and simple sampling method involves microscopic and microbiological examination of an aspirate of a scraping from the penile sheath. It goes without saying that adequate restraint is required for this procedure. An excellent time to collect this sample is during annual fertility examinations of breeding bulls.

Once a diagnosis is established, a number of management decisions must be made to resolve the problem. Culling and/or treatment can be instituted on bulls. Open cows should be culled at pregnancy exam time.

Treatment for bulls is effective but drugs currently used are not approved for use in cattle. Therefore, in view of the current FDA posture on extra-label drug use, it is important to have a valid client-veterinarian relationship and a diagnosis before treatment.

Programs to prevent, control or eradicate trichomoniasis will obviously vary from herd to herd. Some general considerations which will help to avoid the disease would include:

1. Breeding virgin heifers to virgin bulls.
2. Maintaining as young a bull herd as possible.
3. Fertility examining as many breeding bulls as possible annually - not just bulls recently added to the herd.
4. Knowing the health status of herds from which replacements are purchased.

The current level of infection of trichomoniasis in North Dakota beef herds is unknown. A limited survey which is in its second year has told us several things:

1. *T. foetus* infections are present in North Dakota beef herds.
2. *T. foetus* infection should be considered in the differential diagnosis of infertility in beef cattle.
3. Trichomoniasis can be diagnosed on mailed-in samples if they are properly collected, packaged, and shipped.

In 1984, nine veterinary practices submitted 89 samples from 30 herds. *T. foetus* was found in 10 samples (11 percent). Five herds (17 percent) were infected, and a sixth herd, which shared a pasture, was also considered postive.

In 1985, 13 veterinary practices submitted 54 samples of which four (7.4 percent) were positive and four herds (17 percent) were positive.

Infertility rates in infected herds as established by fall pregnancy examination were as high as 10 percent. Data from several herds that treated bulls indicates that the fertility generally improved 5 percent the following year. Some herds reported no discernable infertility problem and chose to sell affected bulls for slaughter. Unfortunately, fertility data was not available from all positive herds nor was breed or age. However, a majority of positive bulls were three years old. This is younger than expected for persistent infection in bulls.

It is hoped that this survey will create an awareness of trichomoniasis during its three-year duration (one year remains) since this is both a preventable and treatable disease. The presence of trichomoniasis in North Dakota cattle increases the necessity of annual fertility examinations of breeding bulls. However, the costs of diagnosis and treatment are minimal when compared to the loss of fertility caused by breeding with an infected bull.

LITERATURE CITED

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Table 3. Minimum feed cost per day advantages, at various selling prices, needed to maintain the relative economic rankings indicated in table 2 assuming the ADG values of 2.43, 2.22, 2.08 and 1.91 and equal average initial weights and equal numbers of days on feed.

For instance: Assuming ADG values of 2.43 and 2.22, return per head over feed costs for commercial/home grown oat base ration would exceed that of the commercial ration as long as the feed costs per day of the commercial/home grown oat base ration are less than that of the commercial ration by at least the following amounts:

Selling price	Minimum feed cost per day advantage needed for commercial/home grown oat base
.50 $/pound	$ .10
.55	.12
.60	.13
.65	.14
.70	.15
.75	.16
.80	.17

The other five analogous comparison values of minimum feed cost per day advantage needed are:

Selling price	Home grown oat base over commercial[1]	Home grown barley base over commercial	Commercial/home grown oat base over home grown oat base	Commercial/home grown oat base over home grown barley base	Home grown oat base over home grown barley base
.50 $/pound	.18	.26	.07	.16	.08
.55	.19	.29	.08	.17	.09
.60	.21	.31	.08	.19	.10
.65	.23	.34	.09	.20	.11
.70	.24	.36	.10	.22	.12
.75	.26	.39	.10	.23	.13
.80	.28	.42	.11	.25	.14

[1]In other words, if the calves are sold at weaning for $.50/pound, the home grown oat base costs have to be only at least $.18 cheaper; but at a selling price of $.80 the home grown oat base costs have to be at least $.28 cheaper.